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Claims after Amendment under PCT Article 19

Note: We amended Claim 1 only under PCT Article 19.

ART 19

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CLAIMS

1. (Amended) A recording and reproducing apparatus, characterized by comprising:

first means of recording for recording a predetermined signal discretely including additional information of a program;

means of controlling records for having said predetermined signal recorded by said first means of recording;

means of controlling reproduction for having said predetermined signal reproduced from said first means of recording;

means of detecting additional information for detecting said additional information of a program from said predetermined signal; and

means of adding additional information for adding said additional information to said predetermined signal.

2. A recording and reproducing apparatus, characterized by comprising:

first means of recording for recording a predetermined signal discretely including additional information of a program;

means of controlling records for having said predetermined signal recorded by said first means of recording;

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means of controlling reproduction for having said predetermined signal reproduced from said first means of recording;

means of detecting PSI or SI for detecting PSI (Program Specific Information) or SI (Service Information) from said predetermined signal; and

means of adding PSI or SI for adding said PSI or SI to said predetermined signal.

3. The recording and reproducing apparatus according to claim 2, characterized in that said predetermined signal is an MPEG transport stream.

4. The recording and reproducing apparatus according to claim 3, characterized in that:

said means of detecting PSI or SI detects PSI or SI on recording an MPEG transport stream; and

on reproducing an MPEG transport stream, said means of adding PSI or SI acquires PSI or SI from said means of detecting PSI or SI and adds the PSI or SI to the head of an MPEG transport stream reproduced from said first means of recording.

5. The recording and reproducing apparatus according to claim 3 characterized in that:

said means of detecting PSI or SI detects PSI or SI on reproducing an MPEG transport stream; and

on reproducing an MPEG transport stream, said means of adding PSI or SI acquires PSI or SI from said means of detecting PSI or SI and adds the PSI or SI to the head

of an MPEG transport stream outputted by said means of controlling reproduction.

6. A recording and reproducing apparatus, comprising:

second means of recording for recording a predetermined signal discretely including additional information of a program;

means of controlling records for having said predetermined signal recorded by said second means of recording;

means of controlling reproduction for having said predetermined signal reproduced from said second means of recording; and

means of detecting PSI or SI for detecting PSI or SI from said predetermined signal;

characterized in that on recording said predetermined signal, said means of detecting PSI or SI detects PSI or SI from said predetermined signal and adds it to the head of the predetermined signal; and

said second means of recording records said predetermined signal having PSI or SI added to its head.

7. The recording and reproducing apparatus according to claim 6, characterized in that said predetermined signal is an MPEG transport stream.

8. A recording and reproducing apparatus, comprising:

means of detecting PSI or SI for detecting PSI or SI from a predetermined signal discretely including additional information of a program;

third means of recording for recording said predetermined signal and said PSI or SI;

means of controlling records for having said predetermined signal and said PSI or SI recorded by said third means of recording;

means of controlling reproduction for having said predetermined signal and said PSI or SI reproduced from said third means of recording; and

means of managing PSI or SI location information for managing a location on said third means of recording where said PSI or SI is recorded as PSI or SI location information,

characterized in that:

on recording said predetermined signal, said means of detecting PSI or SI detects PSI or SI; and

on recording said predetermined signal, said means of managing PSI or SI location information acquires PSI or SI location information from said means of controlling records, and on reproducing said predetermined signal, based on said PSI or SI location information, adds the PSI or SI to the head of the predetermined signal reproduced by said means of controlling reproduction.

9. The recording and reproducing apparatus according to claim 8 characterized in that said predetermined signal is an MPEG transport stream.

10. A recording and reproducing apparatus, comprising:

means of detecting PSI or SI for detecting PSI or SI from a predetermined signal discretely including additional information of a program;

fifth means of recording for recording said predetermined signal and said PSI or SI;

means of controlling records for having said predetermined signal recorded by said fifth means of recording;

means of controlling reproduction for having said predetermined signal reproduced from said fifth means of recording; and

means of managing PSI or SI location information for managing a location where said PSI or SI is recorded as PSI or SI location information,

characterized in that:

said means of detecting PSI or SI detects PSI or SI from said predetermined signal recorded in said fifth means of recording and makes it recorded by said fifth means of recording; and

on reproducing said predetermined signal, based on said PSI or SI location information, said means of managing PSI or SI location information adds the PSI or SI to the head of said predetermined signal reproduced by said means of controlling reproduction.

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11. The recording and reproducing apparatus according to claim 10, characterized in that said predetermined signal is an MPEG transport stream.

12. The recording and reproducing apparatus according to claim 3, 7, 9 or 11, characterized in that said PSI or SI has a cyclic counter value, and a cyclic counter value of PSI or SI added to said MPEG transport stream keeps continuity with a cyclic counter value of PSI or SI included in said MPEG transport stream.

13. The recording and reproducing apparatus according to claim 3, 7, 9 or 11, characterized in that said MPEG transport stream to which PSI or SI is added has its contents rewritten.

14. The recording and reproducing apparatus according to claim 11 [sic], characterized in that a cyclic counter value of PSI or SI added to said means of adding PSI or SI is rewritten in compliance with a cyclic counter value of PSI or SI originally included in said MPEG transport stream so as to keep said continuity.

15. The recording and reproducing apparatus according to claim 13, characterized in that a cyclic counter value of PSI or SI originally included in said MPEG transport stream is replaced in compliance with a cyclic counter value of PSI or SI added to said means of adding PSI or SI so as to keep said continuity.

16. An MPEG image stream recording and reproducing apparatus, comprising:

sixth means of recording for recording an MPEG image stream;

means of controlling records for having said MPEG image stream recorded by said sixth means of recording;

means of controlling reproduction for having said MPEG image stream reproduced from said sixth means of recording;

means of detecting frame I location information for detecting a location of frame I in said MPEG image stream as frame I location information; and

means of managing frame I location information for managing said frame I location information,

characterized in that:

said means of controlling reproduction acquires frame I location information from said means of managing frame I location information and, based on it, reproduces an MPEG image stream having frame I at its head.

17. An MPEG image stream recording and reproducing apparatus, comprising:

means of detecting frame I location information for detecting a location of frame I in an MPEG image stream as frame I location information;

seventh means of recording for recording said MPEG image stream and said frame I location information;

means of controlling records for having said MPEG image stream and said frame I location information recorded by said seventh means of recording;

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means of controlling reproduction for having said MPEG image stream reproduced from said seventh means of recording;

means of managing frame I location information for managing a location on said seventh means of recording where said frame I location information is recorded as management information; and

means of reading frame I location information for reading said frame I location information based on said management information,

characterized in that:

on reproducing an MPEG image stream, said means of reading frame I location information reads said frame I location information from said seventh means of recording and outputs it to said means of controlling reproduction; and

based on said frame I location information, said means of controlling reproduction reproduces image data in the MPEG image stream having frame I at its head.

18. An MPEG image stream recording and reproducing apparatus, comprising:

eighth means of recording for recording an MPEG image stream;

means of controlling records for having said MPEG image stream recorded by said eighth means of recording;

means of controlling reproduction for having said MPEG image stream reproduced from said eighth means of recording; and

means of detecting frame I location information for detecting a location of frame I in said MPEG image stream as frame I location information,

characterized in that said means of controlling records acquires frame I location information from said means of managing frame I location information and, based on it, abandons any image stream before the frame I and makes the MPEG image stream recorded by said eighth means of recording.

19. A recording and reproducing apparatus, comprising:

first means of recording for recording an MPEG transport stream;

means of controlling records for having said MPEG transport stream recorded by said first means of recording;

means of controlling reproduction for having said MPEG transport stream reproduced from said first means of recording;

means of detecting PCR (Program Clock Reference) from said MPEG transport stream; and

means of adding PCR for adding said PCR to said MPEG transport stream.

20. The recording and reproducing apparatus according to claim 19, characterized in that:

said means of detecting PCR detects PCR on recoding an MPEG transport stream; and

on reproducing an MPEG transport stream, said means of adding PCR acquires PCR from said means of recording PCR and adds the PCR to the head of an MPEG transport stream reproduced from said first means of recording.

21. The recording and reproducing apparatus according to claim 19, characterized in that:

said means of detecting PCR detects PCR on reproducing an MPEG transport stream; and

on reproducing an MPEG transport stream, said means of adding PCR acquires PCR from said means of detecting PCR and adds the PCR to the head of an MPEG transport stream outputted by said means of controlling reproduction.

22. A recording and reproducing apparatus, comprising:

second means of recording for recording an MPEG transport stream;

means of controlling records for having said MPEG transport stream recorded by said second means of recording;

means of controlling reproduction for having said MPEG transport stream reproduced from said second means of recording; and

means of detecting PCR for detecting PCR from said MPEG transport stream,

characterized in that:

on recording said MPEG transport stream, said means of detecting PCR detects PCR from the MPEG transport stream and adds it to the head of the MPEG transport stream; and said second means of recording records said MPEG transport stream having PCR added to its head.

23. A recording and reproducing apparatus, comprising:

means of detecting PCR for detecting PCR from an MPEG transport stream;

third means of recording for recording said MPEG transport stream and said PCR;

means of controlling records for having said MPEG transport stream and said PCR recorded by said third means of recording;

means of controlling reproduction for having said MPEG transport stream and said PCR reproduced from said third means of recording; and

means of managing PCR location information for managing a location on said third means of recording where said PCR is recorded as PCR location information,

characterized in that:

said means of detecting PCR detects PCR on recording said MPEG transport stream; and

on recording said MPEG transport stream, said means of managing PCR location information acquires said PCR location information from said means of controlling records; and

on reproducing said MPEG transport stream, based on said PCR location information, adds the PCR to the head of the MPEG transport stream reproduced by said means of controlling reproduction.

24. A recording and reproducing apparatus, comprising:

means of detecting PCR for detecting PCR from an MPEG transport stream;

fifth means of recording for recording said MPEG transport stream and said PCR;

means of controlling records for having said MPEG transport stream recorded by said fifth means of recording;

means of controlling reproduction for having said MPEG transport stream reproduced from said fifth means of recording; and

means of managing PCR location information for managing a location where said PCR is recorded as PCR location information,

characterized in that:

said means of detecting PCR detects PCR from the MPEG transport stream recorded in said fifth means of recording and makes it recorded by said fifth means of recording; and

on reproducing said MPEG transport stream, based on said PCR location information, said means of managing PCR location information adds PCR to the head of said MPEG

transport stream reproduced by said means of controlling reproduction.

25. The recording and reproducing apparatus according to any one of claims 19 to 24, characterized in that said PCR has a cyclic counter value, and a cyclic counter value of PCR added to said MPEG transport stream keeps continuity with a cyclic counter value of PCR included in said MPEG transport stream.

26. The recording and reproducing apparatus according to any one of claims 19 to 24, characterized in that said MPEG transport stream to which PCR is added has its contents rewritten.

27. A recording and reproducing apparatus according to claim 25, characterized in that a cyclic counter value of PCR added to said means of adding PCR is rewritten in compliance with a cyclic counter value of PCR originally included in said MPEG transport stream so as to keep said continuity.

28. The recording and reproducing apparatus according to claim 26, characterized in that a cyclic counter value of PCR originally included in said MPEG transport stream is replaced in compliance with a cyclic counter value of PCR added to said means of adding PCR so as to keep said continuity.

29. The recording and reproducing apparatus according to any one of claims 1 to 28 having a random access function.

30. A medium having a program and/or data for having all or part of the functions of all or part of the means of the present invention described in any one of claims 1 to 28 executed by a computer, characterized by being processible by a computer.

31. An aggregate of information, characterized by being a program and/or data for having all or part of the functions of all or part of the means of the present invention described in any one of claims 1 to 28 executed by a computer.

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